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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,878	07/11/2006	Takashi Tanioka	TANIOKA=1	7726

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EXAMINER	
GAMBETTA, KELLY M	

ART UNIT	PAPER NUMBER
1715	

MAIL DATE	DELIVERY MODE
04/08/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/585,878	TANIOKA ET AL.	
	Examiner	Art Unit	
	KELLY GAMBETTA	1715	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 February 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29* is/are pending in the application.

4a) Of the above claim(s) *25-28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-24 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/4/09 7/11/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

Applicant's election without traverse of 1-24 and 29 in the reply filed on 24 February 2010 is acknowledged. Claims 25-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-24 and 29 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The applicant claims a "normal" pressure in several instances in the claims, however, the term "normal" is indefinite. It is unclear whether the applicant means atmospheric pressure, or whether the pressure is intended to be normal with respect to the apparatus, which also includes positive or negative pressure relative to atmospheric pressure if that is considered "normal" for the operating parameters of the apparatus. As the specification does not adequately define this term, replacement of this term to a definite term in the claims is recommended. Further, the term "overpressure" is likewise indefinite, as it not clear what pressure the claimed pressure is "over". As the

specification does not adequately define this term, replacement of this term to a definite term in the claims is recommended.

Claim 3 recites the limitation "the transportation system". There is insufficient antecedent basis for this limitation in the claim.

Claims 3-7 recite the limitation "the gas". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-16 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siegele et al. (US 2004/0151656 A1) in view of Warren, Jr. et al. (US 4215102).

As to claim 1, Siegele et al. teaches conferring energy on a fluoro compound containing gas under reduced pressure and partially or completely converting the excited fluoro compound containing gas to fluorine under normal pressure or overpressure, as broadly as these terms are defined in paragraphs 0031 and 0049-0051. Siegele et al., though it uses electrolytic cells and imparts energy to the gases, does not describe the gases as excited. Warren, Jr. et al. teaches a converting an excited fluoro compound containing gas to fluorine in column 3 et seq, for example. Because both electrolysis and laser excitation are methods of generating fluorine gas from other gas compounds, this limitation would have been obvious because the substitution of one known element for another would have yielded predictable results to one of ordinary skill in the art at the time of the invention. See *KSR International Co. V. Teleflex Inc* 550 U.S.--, 82, USPQ2d 1385 (2007).

As to claims 2-4, Warren, Jr. et al. excites the gas in a first zone and converts it in a second zone as shown in Figure 1. Siegele et al. teaches the pressure differential as broadly claimed in paragraph 0031, for example. As broadly claimed, "normal" and "overpressure" are relative terms as discussed above, and would include vacuum pressure if that is normal to the reactor.

As to claims 5-8 and 29, the gas conversion and excitation occur in two different chambers, 12 and 16 in Figure 1 of Warren, Jr. et al. Siegele et al. also shows different chambers in Figure 3. Siegele et al. teaches the pressure differential as broadly claimed in paragraph 0031, for example. As broadly claimed, "normal" and "overpressure" are relative terms as discussed above, and would include vacuum pressure if that is normal to the reactor. Siegele et al. also teaches a negative pressure differential which would use a vacuum pump for transport in paragraph 0070, for example.

As to claim 9, the gas is ionized in Warren, Jr. et al. in column 3 et seq.

As to claims 10-11 and 14-15, Warren, Jr. et al. includes some of the claimed compounds in the abstract, for example and in Siegele et al. paragraph 0031, for example.

As to claims 12-13, Warren, Jr et al. uses an inert gas in column 3 lines 45-60. Siegele et al. also uses inert gas in paragraph 0056.

As to claim 16, Siegele et al. discloses surface modifying processes in paragraph 0063. Other limitations in claim 16 are as taught above.

Claims 17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Siegele et al. in view of Warren, Jr. et al. as applied above, and further in view of Laxman et al. (US 5492736)

Siegele et al. and Warren, Jr. et al. teach the limitations of claims 17-24 as discussed above, but do not fluorinate a compound on a substrate using the generated fluorine gas. Laxman et al. teaches fluorinating a silicon oxide compound in the abstract (claims 18-23 - claim 19 is included according to the Markush group of claim 19 being fulfilled) by LPCVD (claim 24) in column 7 lines 27-47 using an inert gas or oxygen (claim 17) in column 3 lines 15-20 and column 5 lines 37-40 in order to control the dielectric constant of the silicon films in column 1 lines 5-30.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Siegele et al. and Warren, Jr. et al. to include fluorinating a compound on a substrate and LPCVD as taught by Laxman et al. in order to control a dielectric constant of the resulting fluorinated silicon oxide film.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KELLY GAMBETTA whose telephone number is (571)272-2668. The examiner can normally be reached on Monday - Thursday 7:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kelly M Gambetta/
Examiner
Art Unit 1715

kmg